

Biochemistry

DIFFERENT ENZYMES ARE RESPONSIBLE FOR THE CONVERSION OF OLEIC ACID TO 7-HYDROXYOCTADECENOIC AND 7,10-DIHYDROXYOCTADECENOIC ACIDS

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It has been reported that *Pseudomonas aeruginosa* (P. *Aeruginosa*) 2HS, WIU-JS and PR3 can transform oleic acid to 7-hydroxyoctadecenoic acid (HOD) and 7,10-dihydroxyoctadecenoic acid (DOD). The time course of the production of HOD and DOD suggested that HOD is the precursor of DOD. However, the enzyme(s) catalyze these reactions has not been purified. It is not clear whether these bioconversion processes are catalyzed by two separate enzymes or by one bifunctional enzyme. We are interested in these enzymes because HOD, an isomer of ricinoleic acid, may be an industrial useful compound.

In this study, we began isolation of the enzyme(s) from the cell-free extract of *P. aeruginosa* 2HS and WIU-JS. The cell-free extract was fractionated by ammonium sulfate (AS). We found that the enzyme responsible for the production of HOD is predominant in the 0-20% AS fraction, and the enzyme responsible for the production of DOD is predominant in the 20-40% AS fraction. Our results suggested that there are two separate enzymes catalyze the conversion of oleic acid to HOD and then DOD.

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